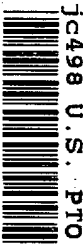


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04/06/99



JC498 U.S. PTO



JC612 U.S. PTO

09/286822

04/06/99

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship.....Grate et al.
Applicant.....Microsoft Corporation
Attorney's Docket No.MS1-305US
Title: E-Commerce System and Method for Automated Configuration of Trading Relationships

TRANSMITTAL LETTER AND CERTIFICATE OF MAILING

To: Commissioner of Patents and Trademarks
Washington, D.C. 20231

From: Lewis C. Lee (509) 324-9256
Lee & Hayes, PLLC
W. 201 North River Drive, Suite 430
Spokane, WA 99201

The following enumerated items accompany this transmittal letter and are being submitted for the matter identified in the above caption.

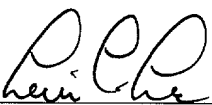
1. Transmittal Letter with Certificate of Mailing included.
2. PTO Return Postcard Receipt
3. New patent application (title page plus 19 pages, including claims 1-29 & Abstract)
4. Executed Declaration
5. 3 sheets of formal drawings (Figs. 1-3)
6. Assignment w/Recordation Cover Sheet

Large Entity Status ☒ [x]

Small Entity Status ☐ []

The Commissioner is hereby authorized to charge payment of fees or credit overpayments to Deposit Account No. 50-0463 in connection with any patent application filing fees under 37 CFR 1.16, and any processing fees under 37 CFR 1.17.

Date: April 5, 1999

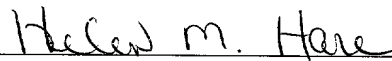
By: 
Lewis C. Lee
Reg. No. 34,656

CERTIFICATE OF MAILING

I hereby certify that the items listed above as enclosed are being deposited with the U.S. Postal Service as either first class mail, or Express Mail if the blank for Express Mail No. is completed below, in an envelope addressed to The Commissioner of Patents and Trademarks, Washington, D.C. 20231, on the below-indicated date. Any Express Mail No. has also been marked on the listed items.

Express Mail No. (if applicable) EL209423174

Date: April 5, 1999

By: 
Helen M. Hare

CALCULATION OF TOTAL FEES DUE

MS1-305US

CLAIMS FEES	Number Filed (Col. 1)	No. Extra (Col. 2)	Small Entity		Large Entity	
			Rate (\$)	Fee (\$)	Rate (\$)	Fee (\$)
Basic Fee				395		760
Total Claims	29 - 20 =	9	x 9 =		x 18 =	162
Indep. Claims	9 - 3 =	6	x 39 =		x 78 =	468
TOTAL APPLICATION FEES						1,390
[
Any Other Fees						
TOTAL FEES SUBMITTED						\$1,390

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR LETTERS PATENT

**E-Commerce System and Method for Automated
Configuration of Trading Relationships**

Inventor(s):

Thomas A. Grate

Bryan J. Nylin

ATTORNEY'S DOCKET NO. MS1-305US

Electronic Submission

1 manually entering information for thousands of trading partners can be tedious,
2 time consuming, and is prone to error.

3 4 **SUMMARY**

5 This invention concerns an electronic commerce system that allows
6 potential trading partners to automatically configure a trading relationship for
7 network-based business exchanges.

8 In one implementation, the system has a first computer system at a first
9 trading partner and a second computer system at a second trading partner. The
10 computer systems are interconnected via a network, such as the Internet.

11 The automated configuration process involves two phases. In a first phase,
12 each of the trading partners enters its own configuration details (e.g., trading
13 partner name, mailing address, Web site address, email, network and data
14 communication protocol(s), cryptographic capabilities, digital certificates, etc.).
15 As an example, a user/operator at each trading partner manually enters the
16 information via a graphical user interface. Once the information is entered, the
17 trading partner publishes that information to a URL (universal resource locator) at
18 a Web site (hosted by the trading partner, or elsewhere).

19 In a second phase, one of the trading partners attempts to forge an
20 electronic trading relationship with a potential trading partner. The first trading
21 partner enters the URL for the potential trading partner's configuration details and
22 pulls the details down from the Web site addressed by the URL. The first trading
23 partner then automatically creates and configures the trading relationship for
24 online exchanges with the potential trading partner. This can be done by creating
25

1 a trading record and automatically populating that record using the potential
2 trading partner's configuration details.

3 4 **BRIEF DESCRIPTION OF THE DRAWINGS**

5 Fig. 1 shows a network architecture having two trading partners
6 interconnected via a distributed network.

7 Fig. 2 shows an exemplary computer that can be configured as a server
8 computer at each of the trading partners.

9 Fig. 3 is a flow diagram showing a two-phase automated configuration
10 process to establish an electronic trading relationship between the trading partners.

11 12 **DETAILED DESCRIPTION**

13 An electronic commerce system allows potential trading partners to
14 automatically configure a trading relationship for network-based business
15 exchanges. The trading relationship governs how the trading partners' computer
16 systems connect to one another and communicate over a network. The system
17 scales to many participating trading partners, but is described in the context of two
18 trading partners.

19 20 **Architecture**

21 Fig. 1 shows a network system 20 having a first computer system 22(1) at a
22 first trading partner and a second computer system 22(2) at a second trading
23 partner. A network 24, such as the Internet or other wide area network,
24 interconnects the computer systems 22(1) and 22(2). The trading partners are
25 involved in online commerce and hope to establish a trading relationship that

1 allows the exchange of business documents or other data over the Internet 24. The
2 trading relationship governs how the computer systems 22(1) and 22(2) connect
3 and communicate with one another.

4 The computer systems 22(1), 22(2) each have a server computer 30(1),
5 30(2) that may be implemented as a single computing unit or a clustered group of
6 computing units. The server computers 30(1), 30(2) run Web server software
7 32(1), 32(2) to facilitate communication over the Internet 24, such as receiving
8 requests from other clients and returning responses to those clients. One example
9 of a Web server is the Internet Information Server (IIS) from Microsoft
10 Corporation.

11 The server computers 30(1), 30(2) also run commerce server software
12 34(1), 34(2) to facilitate commerce and other business related correspondence over
13 the Internet 24. An example of the commerce server is the Site Server, Commerce
14 Edition, from Microsoft Corporation.

15 The commerce servers 34(1), 34(2) implement business document
16 gateways 36(1), 36(2), which are shown implemented as Microsoft's Commerce
17 Interchange Pipeline (CIP). The document gateways 36(1), 36(2) facilitate the
18 interchange of business documents between trading partners. The commerce
19 servers 34(1), 34(2) also implement trading partner management tools 38(1), 38(2)
20 that manage electronic relationships with other trading partners. The tools are
21 shown implemented as Microsoft's Commerce Interchange Pipeline Manager
22 (CIPM).

23 The computer systems 22(1), 22(2) each have a CIPM database 40(1),
24 40(2) to store business documents 42(1), 42(2) used by the CIPM software 38(1),
25 38(2). Examples of business documents include purchase orders, invoices,

1 receipts, shipping notices, and so forth. The CIPM databases 40(1), 40(2) also
2 store the trading partner's configuration details 44(1), 44(2) used to configure
3 trading relationships with other trading partners.

4 The configuration details are entered manually by a user/operator of the
5 trading partner. The configuration details include business information as trading
6 partner name, mailing address, Web site address, and email address. The
7 configuration details also include system information such as the various network
8 and data communication protocol(s) supported by the computer systems and the
9 type of software being run on each server. The configuration details might further
10 include security information, such as cryptographic capabilities, digital
11 certificates, and so forth. The security information might dictate, for example,
12 whether the trading partners exchange information over the Internet in an
13 unsecured fashion, or employ a virtual private network (VPN) tunneled through
14 the Internet to communicate using encrypted data.

15 The computer systems 22(1), 22(2) each have a database 46(1), 46(2) to
16 store Web content, such as Web pages and other documents. For example, the
17 pages may be HTML (hypertext markup language) documents or ASP (active
18 server page) documents.

19 One or more pages 48(1), 48(2) hold a copy of the configuration details
20 44(1)', 44(2)' stored in the CIPM databases 40(1), 40(2). That is, the
21 configuration details that were entered manually are posted to the trading partner's
22 Web site (or another designated site) at a URL (universal resource locator) that is
23 publicly accessible. As a result, when two partners create a trading relationship,
24 each trading partner visits the other's Web site using the given URLs and
25 download the Web pages 48(1), 48(2) with the configuration details 44(1)', 44(2)'

1 for use in automated configuration of the trading relationship. In one
2 implementation, the CIPM programs 38(1), 38(2) create trading partner records
3 50(1), 50(2) and automatically populate them with the other trading partner's
4 configuration details.

5 One exemplary implementation of the automated configuration process is
6 described below under the heading "Operation" and with reference to Fig. 3. Prior
7 to explaining this process, however, an exemplary implementation of a computer
8 used to implement the server computers 22(1), 22(2) is described.

9 10 **Exemplary Server Computer**

11 Fig. 2 shows an exemplary implementation of a server computer 22(1),
12 22(2). The computer is a general-purpose computing device in the form of a
13 conventional personal computer 100 that is configured to operate as a Web server.

14 Computer 100 includes a processing unit 102, a system memory 104, and a
15 bus 106 that couples various system components including the system memory
16 104 to the processing unit 102. The bus 106 represents one or more of any of
17 several types of bus structures, including a memory bus or memory controller, a
18 peripheral bus, an accelerated graphics port, and a processor or local bus using any
19 of a variety of bus architectures. The system memory 104 includes read only
20 memory (ROM) 108 and random access memory (RAM) 110. A basic
21 input/output system 112 (BIOS) is stored in ROM 108.

22 Computer 100 also has one or more of the following drives: a hard disk
23 drive 114 for reading from and writing to a hard disk, a magnetic disk drive 116
24 for reading from or writing to a removable magnetic disk 118, and an optical disk
25 drive 120 for reading from or writing to a removable optical disk 122 such as a CD

1 ROM or other optical media. The hard disk drive 114, magnetic disk drive 116,
2 and optical disk drive 120 are connected to the bus 106 by a hard disk drive
3 interface 124, a magnetic disk drive interface 126, and an optical drive interface
4 128, respectively. The drives and their associated computer-readable media
5 provide nonvolatile storage of computer readable instructions, data structures,
6 program modules and other data for the personal computer. Although a hard disk,
7 a removable magnetic disk and a removable optical disk are described, other types
8 of computer readable media can be used to store data, such as flash memory cards,
9 digital video disks, random access memories (RAMs), read only memories
10 (ROM), and the like.

11 A number of program modules may be stored on the hard disk, magnetic
12 disk, optical disk, ROM, or RAM. These programs include an operating system
13 130, one or more application programs 132, other program modules 134, and
14 program data 136. The programs 132 or modules 134 include, for example, the
15 commerce server and Web server programs installed at each trading partner.

16 A user may enter commands and information into the personal computer
17 100 through input devices such as keyboard 138 and pointing device 140. Other
18 input devices (not shown) may include a microphone, joystick, game pad, satellite
19 dish, scanner, or the like. These and other input devices are often connected to the
20 processing unit 102 through a serial port interface 142 that is coupled to the bus
21 106, but may be connected by other interfaces, such as a parallel port, game port,
22 or a universal serial bus (USB).

23 A monitor 144 or other type of display device is also connected to the bus
24 106 via an interface, such as a video adapter 146. The monitor 144 is used to
25 present a graphical user interface that assists a user/operator in entering the

1 configuration details of the trading partner. In addition to the monitor, personal
2 computers typically include other peripheral output devices (not shown) such as
3 speakers and printers.

4 The server computer 100 is connected to the Internet 24 through a network
5 interface or adapter 150, a modem 152, or other means for establishing
6 communications over the network. The modem 152, which may be internal or
7 external, is connected to the bus 106 via the serial port interface 142.

8 9 **Operation**

10 The architecture shown in Fig. 1 enables automated configuration of
11 trading partners who are creating an electronic trading relationship. The
12 automated configuration process has two phases. The first phase involves creation
13 and publishing of each trading partner's configuration details. In this phase, each
14 trading partner enters its configuration details and posts it to a Web site at a
15 selected URL. The second phase involves establishment of a trading relationship
16 that will govern the interactions between the trading partners' computing systems.
17 In the second phase, a potential trading partner accesses the configuration details
18 of another trading partner at the given URL and uses the details to automatically
19 configure the electronic trading relationship.

20 Fig. 3 shows the two-phase automated configuration process. The process
21 can be performed in software, hardware, or a combination of hardware and
22 software, and is described with reference to the architecture of Fig. 1.

23 At step 200 and 202, the configuration details for each trading partner
24 22(1), 22(2) are collected. In one implementation, CIPM program 36(1), 36(2)
25 presents one or more graphical user interface (UI) windows or dialog boxes that

1 enable a user/operator to manually enter the configuration details. Once collected,
2 the configuration details 44(1), 44(2) are stored in the trading partners' CIPM
3 databases 40(1), 40(2) (steps 204 and 206).

4 At steps 208 and 210, each trading partner posts its configuration details to
5 a URL at a Web site that is accessible over the Web. In one implementation, the
6 Web site is hosted by the respective computer systems 22(1), 22(2) and hence, the
7 URL coincides with the trading partner's own Web site, such as
8 "http://www.company.com/trading_partner_info.cio". Alternatively, the Web site
9 may be independent of the trading partners, such as a site for an organization of
10 trading partners.

11 The user/operator who enters the configuration details on behalf of a
12 trading partner clicks a control (e.g., a "POST" or "PUBLISH" icon) or checks an
13 appropriate box in the graphical UI window to publish the configuration details to
14 the URL. The URL may be selected by the user/operator, or automatically
15 assigned by the CIPM program. The posted configuration details 44(1)', 44(2)'
16 are shown in Fig. 1 as part of pages 48(1), 48(2), which are stored in content
17 databases 46(1), 46(2) and can be served by Web server 32(1), 32(2) to requesting
18 trading partners.

19 This completes the creation and publishing phase of the automated
20 configuration process. The second phase concerns establishment of a trading
21 relationship. For discussion purposes, suppose that the first trading partner 22(1)
22 is attempting to establish a relationship with the second trading partner 22(2).

23 At step 212, the first trading partner 22(1) initiates creation of a new trading
24 relationship with the second trading partner 22(2). The user/operator at the first
25 trading partner 22(1) uses the CIPM program 36(1) to set up the information

needed to communicate and interact with the second trading partner 22(2) over the Internet. The user/operator enters the URL address of the configuration details for the second trading partner (step 214). In this example, suppose the URL address is to the second trading partner's Web site and particularly, to Web page 48(2). The URL is obtained directly from the second trading partner, or from a public directory listing the URLs of various partners.

In response to entry of the URL, the first trading partner 22(1) sends a request with the URL over the Internet 24 to the second trading partner 22(2) (step 216). The Web server 32(2) at the second trading partner 22(2) handles the request and uses the URL to retrieve the page 48(2) with the configuration details 44(2)' (step 218). The Web server 32(2) then serves the page back to the first trading partner 22(1) over the Internet 24 (step 220).

At step 222, the CIPM 36(1) executing at the first trading partner's server computer 30(1) creates a new trading partner record 50(1) and automatically populates that record with the configuration details 44(2)' retrieved from the second trading partner's Web site. The new trading partner record 50(1) is then stored in the CIPM database 40(1) for later use in online business exchanges between the two trading partners (step 224). As one exemplary implementation, the data retrieved from the trading partners web site can be in XML format.

The process is advantageous over prior art systems in that the trading relationships are established automatically. The user/operator no longer needs to manually input the configuration details of every trading partner. When scaled to thousands of trading partners, this results in a substantial and significant gain in efficiency and administrative costs.

1 **Conclusion**

2 Although the invention has been described in language specific to structural
3 features and/or methodological steps, it is to be understood that the invention
4 defined in the appended claims is not necessarily limited to the specific features or
5 steps described. Rather, the specific features and steps are disclosed as preferred
6 forms of implementing the claimed invention.

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1 **CLAIMS**

2 1. A method for establishing a trading relationship between trading
3 partners involved in electronic commerce, the method comprising:

4 retrieving configuration details associated with a potential trading partner
5 from a remote site; and

6 automatically configuring a trading relationship with the potential trading
7 partner using the configuration details.

8
9 2. A method as recited in claim 1, wherein the retrieving comprises
10 addressing a URL (universal resource locator) to access the configuration details.

11
12 3. A method as recited in claim 1, wherein the automatically
13 configuring comprises:

14 creating a trading partner record; and

15 automatically populating the trading partner record with the configuration
16 details.

17
18 4. In an electronic commerce trading system involving exchanges of
19 commerce information over a network, a method comprising:

20 collecting configuration details associated with a trading partner
21 participating in the commerce trading system; and

22 publishing the configuration details to a Web site.
23
24
25

1 5. A method as recited in claim 4, wherein the collecting comprises
2 presenting a graphical user interface to enable a user to enter the configuration
3 details.

4
5 6. A method as recited in claim 4, wherein the publishing comprises
6 posting the configuration details to a URL (universal resource locator) at the Web
7 site.

8
9 7. A method as recited in claim 4, wherein the Web site is associated
10 with the trading partner.

11
12 8. A method for establishing a trading relationship between trading
13 partners involved in electronic commerce, the method comprising:

14 creating a trading partner record for a potential trading partner;

15 retrieving configuration details associated with the potential trading partner
16 from a remote site; and

17 populating the trading partner record with the configuration details
18 retrieved from the remote site.

19
20 9. A method as recited in claim 8, wherein the retrieving comprises
21 addressing a URL (universal resource locator) to access the configuration details
22 posted to a Web site.

1 **10.** A method for establishing a trading relationship between first and
2 second trading partners involved in electronic commerce, the method comprising:
3 collecting configuration details associated with the first trading partner;
4 publishing the configuration details to a Web site;
5 creating, at the second trading partner, a trading partner record for the first
6 trading partner;
7 retrieving the configuration details associated with the first trading partner
8 from the Web site; and
9 populating the trading partner record with the configuration details
10 associated with the first trading partner.

11
12 **11.** A method as recited in claim 10, wherein the collecting comprises
13 presenting a graphical user interface to enable a user to enter the configuration
14 details.

15
16 **12.** A method as recited in claim 10, wherein the publishing comprises
17 publishing the configuration details in XML format.

18
19 **13.** A method as recited in claim 10, wherein the publishing comprises
20 posting the configuration details to a URL (universal resource locator) at the Web
21 site.

22
23 **14.** A method as recited in claim 13, wherein the retrieving comprises
24 addressing the URL to access the configuration details posted to the Web site.
25

1 **15.** A system comprising:

2 a first computer system at a first trading partner;

3 a second computer system at a second trading partner;

4 a Web site;

5 the first computer system collecting configuration details associated with
6 the first trading partner and publish the configuration details to the Web site; and

7 the second computer system retrieving the configuration details from the
8 Web site and automatically configure for a trading relationship with the first
9 trading partner using the configuration details.

10
11 **16.** A system as recited in claim 15, wherein the first computer system
12 hosts the Web site.

13
14 **17.** A system as recited in claim 15, wherein the first computer system
15 presents a graphical user interface to enable a user to enter the configuration
16 details.

17
18 **18.** A system as recited in claim 15, wherein the first computer system
19 posts the configuration details in XML format.

20
21 **19.** A system as recited in claim 15, wherein the first computer system
22 posts the configuration details to a URL (universal resource locator) at the Web
23 site.

24

25

1 **20.** A system as recited in claim 19, wherein the second computer
2 system addresses the URL to access the configuration details.

3
4 **21.** A system as recited in claim 15, wherein the second computer
5 system creates a trading partner record and automatically populates the trading
6 partner record with the configuration details.

7
8 **22.** A electronic commerce system, comprising:
9 a first component at a first trading partner, the first component collecting
10 configuration details associated with the first trading partner and publishing the
11 configuration details to a Web site; and

12 a second component at a second trading partner, the second component
13 retrieving the configuration details from the Web site and automatically
14 configuring a trading relationship with the second trading partner using the
15 configuration details.

16
17 **23.** A electronic commerce system as recited in claim 22, wherein the
18 first program code presents a graphical user interface to enable a user to enter the
19 configuration details.

20
21 **24.** A electronic commerce system as recited in claim 22, wherein the
22 first program code posts the configuration details to a URL (universal resource
23 locator) at the Web site.

1 **25.** A electronic commerce system as recited in claim 24, wherein the
2 second program code addresses the URL to access the configuration details.
3

4 **26.** A electronic commerce system as recited in claim 22, wherein the
5 second program code creates a trading partner record and automatically populates
6 the trading partner record with the configuration details.
7

8 **27.** A software architecture for an electronic commerce system having
9 trading partners that exchange data over a network, comprising:

10 first program code stored on a computer-readable medium at a first trading
11 partner, the first program code having computer-executable instructions that, when
12 executed by one or more processors, collect configuration details associated with
13 the first trading partner and publish the configuration details to a Web site; and

14 second program code stored on a computer-readable medium at a second
15 trading partner, the second program code having computer-executable instructions
16 that, when executed by one or more processors, retrieve the configuration details
17 from the Web site and automatically configure a trading relationship with the
18 second trading partner using the configuration details.
19

20 **28.** In an electronic commerce trading system involving exchanges of
21 commerce information over a network, a computer-readable medium at a
22 computer system participating in the commerce trading system storing computer-
23 executable instructions for:

24 collecting configuration details associated with a trading partner that
25 participates in electronic commerce; and

publishing the configuration details to a Web site.

29. In an electronic commerce trading system involving exchanges of commerce information over a network, a computer-readable medium at a computer system participating in the commerce trading system storing computer-executable instructions for:

creating a trading partner record for a potential trading partner that participates in electronic commerce;

retrieving configuration details associated with the potential trading partner from a Web site; and

populating the trading partner record with the configuration details retrieved from the Web site.

1 **ABSTRACT**

2 An electronic commerce system allows trading partners to automatically
3 configure a trading relationship for network-based business exchanges. The
4 system has a first computer system at a first trading partner and a second computer
5 system at a second trading partner. The computer systems are interconnected via a
6 network, such as the Internet. The trading relationship governs how the trading
7 partners' computer systems connect to one another and communicate over the
8 network. The automated configuration process involves two phases. In a first
9 phase, each of the trading partners enters all of its own configuration details and
10 publishes that information to a URL (universal resource locator) at a Web site
11 (hosted by the trading partner, or elsewhere). In a second phase, one of the trading
12 partners attempts to forge a trading relationship with a potential trading partner by
13 entering the URL for the potential trading partner's configuration details and
14 pulling the details down from the Web site. The first trading partner then
15 automatically creates and configures the trading relationship for online exchanges
16 with the potential trading partner.

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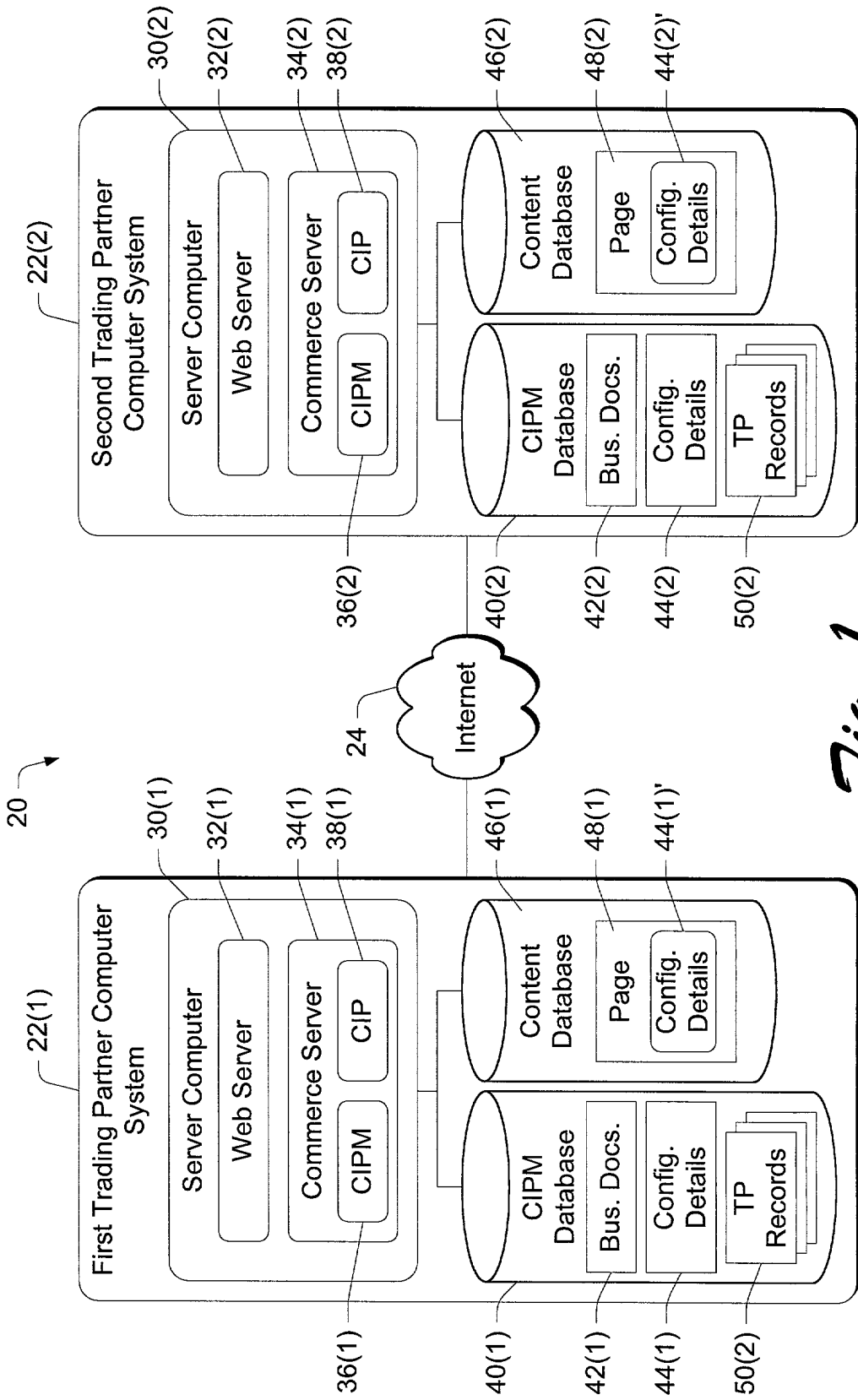
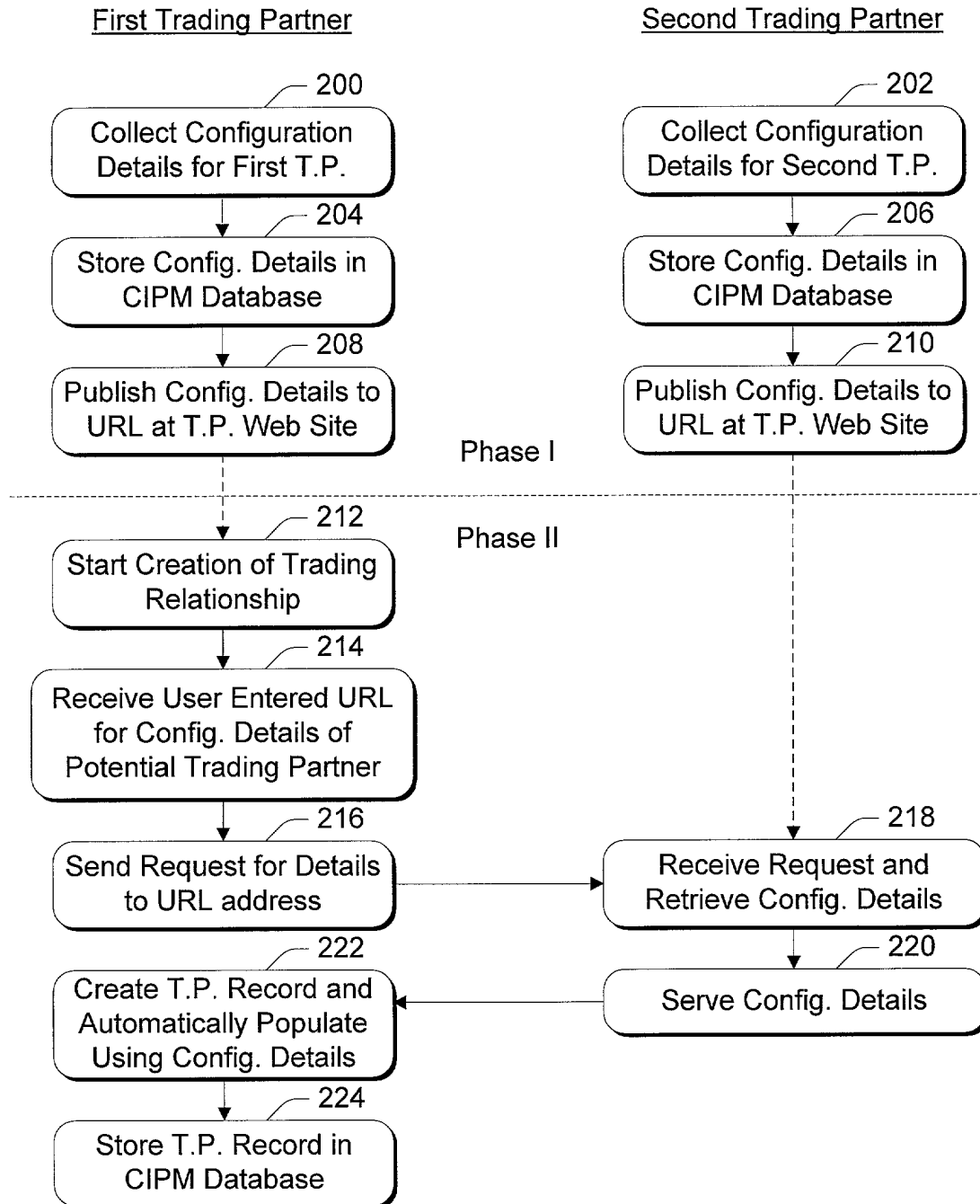


Fig. 1

*Fig. 3*

1 **IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

2 Inventorship..... Grate et al.
 3 Applicant Microsoft Corporation
 4 Attorney's Docket No. MS1-305US
 Title: E-Commerce System and Method for Automated Configuration of Trading
 Relationships

5 **DECLARATION FOR PATENT APPLICATION**

6 As a below named inventor, I hereby declare that:

7 My residence, post office address and citizenship are as stated below next to
 8 my name.

9 I believe I am the original, first and sole inventor (if only one name is listed
 10 below) or an original, first and joint inventor (if plural names are listed below) of the
 11 subject matter which is claimed and for which a patent is sought on the invention
 12 entitled "E-Commerce System and Method for Automated Configuration of Trading
 13 Relationships," the specification of which is attached hereto.

14 I have reviewed and understand the content of the above-identified
 15 specification, including the claims.

16 I acknowledge the duty to disclose information which is material to the
 17 examination of this application in accordance with Title 37, Code of Federal
 18 Regulations, § 1.56(a).

19 PRIOR FOREIGN APPLICATIONS: no applications for foreign patents or
 20 inventor's certificates have been filed prior to the date of execution of this
 21 declaration.

22 **Power of Attorney**

23 I appoint the following attorneys to prosecute this application and transact all
 24 future business in the Patent and Trademark Office connected with this application:
 25 Lewis C. Lee, Reg. No. 34,656; Daniel L. Hayes, Reg. No. 34,618; Allan T.

1 Sponseller, Reg. 38,318, Steven R. Sponseller, Reg. No. 39,384, James R.
2 Banowsky, Reg. No. 37,773, David A. Morasch, Reg. No. 42,905 Katie E. Sako,
3 Reg. No. 32,628 and Daniel D. Crouse, Reg. No. 32,022.

4 Send correspondence to: LEE & HAYES, PLLC, W. 201 North River Drive,
5 Suite 430, Spokane, Washington, 99201. Direct telephone calls to: Lewis C. Lee
6 (509) 324-9256.

7
8 All statements made herein of my own knowledge are true and that all
9 statements made on information and belief are believed to be true; and further that
10 these statements were made with the knowledge that willful false statements and the
11 like so made are punishable by fine or imprisonment, or both, under Section 1001 of
12 Title 18 of the United States Code and that such willful false statement may
13 jeopardize the validity of the application or any patent issued therefrom.

14
15 * * * * *

16 Full name of inventor: Thomas A. Grate

17 Inventor's Signature



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Inventor's Signature

Bryan J. Nylin

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